

538,532

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number
WO 2004/053147 A1

(51) International Patent Classification⁷: C12Q 1/02,
1/68, G06F 19/00

(74) Agent: PRINS, A.W.; Nieuwe Parklaan 97, NL-2587 BN
Den Haag (NL).

(21) International Application Number:
PCT/NL2003/000885

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date:
12 December 2003 (12.12.2003)

(25) Filing Language: Dutch

(26) Publication Language: English

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(30) Priority Data:
1022152 12 December 2002 (12.12.2002) NL

(71) Applicant (*for all designated States except US*): NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK TNO [NL/NL]; Schoemakerstraat 97, NL-2628 VK Delft (NL).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): VAN DER VOSSEN, Josephus, Mauritius, Bernardus, Maria [NL/NL]; Bloemenheuvellaan 13, NL-3702 AP Zeist (NL). SCHUREN, Frank, Henri, Johan [NL/NL]; Bachlaan 34, NL-3906 ZK Veenendaal (NL). MONTIJN, Roy, Christiaan [NL/NL]; Werengouw 9, NL-1024 NL Amsterdam (NL).

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROCESS CONTROL BASED ON ANALYSIS OF MICROBIAL POPULATIONS

WO 2004/053147 A1

(57) **Abstract:** The present invention relates to determining environmental conditions for the purpose of process control by means of microorganisms. The present invention makes use of the principle that changes in the composition of a microbial population after applying an external stimulus are characteristic of the nature of the stimulus received by the microbial population. By measuring these changes, the composition of the microbial population can be used as a specific sensor to determine the physical chemical environmental conditions, to determine the extent of change in this environmental condition, to determine the nature and intensity of the stimulus, and to be able to measure the effects of different stimuli on various processes and thus control these processes.